CLAIMS

1. Cycle pedal comprising a pedal body (1) constituted of a globally rectangular horizontal plate (2) fitted on its upper surface with means for locking (5, 6, 33) a cyclist's shoe (8) and on one of its longitudinal edges a case (3) containing a pedal pin (4) designed to be fixed to the free end of a crank (41) characterised in that the plate (1) is secured to the case (3) so that its upper surface extends beneath the pedal pin (4) along a distance a and the support axis (7) of the shoe on the pedal plate (1) which merges with the front plate passing through the metatarsus of the cyclist's big toe when the latter is pedalling, extends in front of the pedal pin (14) along a distance b so that the pedal support axis (7) describes a circular curve with centre O' and radius r' offset from a downwards and from b forward relative to the circular curve of the pedal pin (4) with centre O, where O' is the axis of the cycle bottom bracket shell and of radius r.

2. Pedal set forth in the previous claim, characterised in that the plate (1) movable plate (25) on its upper surface designed to slide longitudinally and on the upper surface of which merge the means for locking (5, 6, 33) a cyclist's shoe (8) in order to adapt the longitudinal position of said means for locking (5, 6, 33) of the shoe (8) according to the shoe size of the cyclist or even to adjust the distance b separating the pedal pin (4) from the support axis (7).

3. Pedal set forth in claim 2, characterised in that the upper surface of the plate (1) comprises a longitudinal hollow (30) opening out onto its front end and in which the movable plate (25) slides so that the upper surface of said plate (25) is flush with the upper surface of the plate (1).

4. Pedal set forth in claim 3, characterised in that the longitudinal edges of the movable plate (25) comprise the toothed elements (31) designed to co-operate with the complementary toothed elements (32) integral with the longitudinal edges of the hollow (30) of the plate (1) in order to ensure the locking of the plate (25) in said hollow (30).

5. Pedal set forth in any one of claims 2 to 4, characterised in that the means for locking a cyclist's shoe (8) comprise a toe clip (35) integral with the front end of the movable plate (25).

6. Pedal set forth in claim 2, characterised in that the plate (1) comprises at least two longitudinal openings (28) crossed by two bolts (29) designed to co-operate with two threaded holes made in the lower surface of the movable plate (25).

7. Pedal set forth in any one of claims 2 or 6, characterised in that the means for locking a shoe comprise, on one hand, a front interlocking mechanism (5) designed to co-operate with the front part of a clip (9) integral with the sole (10) of the cyclist's shoe (8) and, on the other hand, a movable rear interlocking mechanism (6) designed to co-operate with the rear part of the clip (9) of the shoe (8), the movable rear interlocking mechanism (6) being movable under the pressure of the rear part of the clip (9) of the shoe (8) from a position called interlocked, and passing through an open position allowing to insert or remove the rear part of the clip (9) of the shoe (8), until returning to the interlocking position under stress from an elastic means (20).

8. Pedal set forth in claim 7, characterised in that the front interlocking mechanism (5) consist in a recess (11) made in the upper surface of the plate (1), in its front part, and in which a clamp (12) is located which

slightly juts out from the upper surface of the plate (1) and in which a lug (13) fits jutting out from the front part of the clip (9) of the cyclist's shoe (8).

9. Pedal set forth in claim 7, characterised in that the front interlocking mechanism (5) consists in a stud (37) extending vertically from the upper surface of the plate (1), in its front part, and comprising retention means (38) at its upper end, said stud (37) lodging into a recess (39) made in a lug (13) which juts out from the front part of the clip (9) of the cyclist's shoe (8) and which is V shaped at the bottom of which a globally semicircular complementary recess (40) is made whose diameter is slightly bigger than the diameter of the stud (37).

10. Pedal set forth in claim 9, characterised in that the retention means (38) consist in a flange.

11. Pedal set forth in claim 9, characterised in that the retention means (38) consist in radial ribs.

12. Pedal set forth in any one of claims 7 to 11, characterised in that the movable rear interlocking element (6) consists in a second clamp (14) articulated about a transversal pin (15) extending from the rear of the plate (1) and on the lower end of which leans a spherical mounting (16) located at the free end of a rod (17) extending longitudinally beneath the transversal hinge pin (15) of the clamp (14) and integral with a piston sliding within a longitudinal recess (19) made in the plate (1) and opening out onto the rear end of said plate (1), said piston (18) leaning against a coil spring (20) located in said longitudinal recess (19).

13. Pedal set forth in claim 12, characterised in that the rod (17) consists of a threaded rod co-operating with a threaded hole (21) made in the piston (18) sliding along the longitudinal recess (19).

14. Pedal set forth in claim 13, characterised in that the free end of the swivel mounting (16) comprises a screw head (22) extending across an opening (23) made in the lower end of the clamp (14) and opening out onto its rear surface.

15. Pedal set forth in any one of claims 13 or 14, characterised in that the swivel mounting (16) leans against a concave hollow (24) whose radius of curvature is identical to that of the swivel mounting (16).

16. Pedal set forth in any one of claims 2 to 5, characterised in that it comprises means for varying the distance b separating the pedal pin (4) from the support axis (7) of the shoe (8) on said pedal throughout the entire revolution of the pedal during the action of pedalling.

17. Pedal set forth in claim 16, characterised in that it comprises a connecting rod (49) of which a first end is freely mounted in rotation about an eccentric (50) of a case (51) integral with the free end of the crank (41) and whose second end comprises a transversal pin (52) about which the front end of the movable pedal plate (25) is freely mounted in rotation which is designed to slide longitudinally along the upper surface of the plate (1), the rear part of said pedal plate (1) being freely mounted in rotation about the axis of the end of the crank (41).

18. Pedal set forth in any one of claims 1 to 15, characterised in that it comprises a belt (43) extending along the crank between a drive pinion (44) integral with the bottom bracket shell and a driven pinion (45) integral with the case (3) of the pedal so that the rotational movement of the crank (41) rotates the pedal plate (1) about the pedal pin (4).

19. Pedal set forth in claim 18, characterised in that the driven pinion (45) is integral with the case (3) of the pedal by elastic means (46).

20. Pedal set forth in claim 19, characterised in that the driven pinion (45) is integral with the case (3) of the pedal by means of a coil spring (46) located on the inside of a circular recess (47) made in the driven pinion (45) so that the axis of the spring is coaxial to the axis of rotation of the driven pinion (45), the ends of the coil spring (46) being respectively integral with the driven pinion (45) and the case (3) of the pedal.

21. Pedal set forth in claim 20, characterised in that it comprises a safety gear case (48) designed to be fitted onto the crank (41) to cover the belt (43) and the drive (44) and driven (45) pinions.